

Economic Classification Policy Committee

Issues Papers

Issues Paper No. 6
Services Classifications

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Note to reader: This is the sixth in the series of classification issues papers prepared by the Economic Classification Policy Committee. Previous papers can be obtained from the Economic Classification Policy Committee, Bureau of Economic Analysis (BE-42), U.S. Department of Commerce, Washington, D.C. 20230, or by telephone at (202) 606-9615, FAX (202) 606-5311.

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6.1 Introduction

Services industries pose many classification problems, and services industries have become much more important than they were when the U.S. Standard Industrial Classification (SIC) system was first designed. In 1992, goods-producing industries--manufacturing, mining, agriculture, and construction--made up only 23 percent of U.S. employment [1]; by expenditures, goods and structures accounted for less than half (46 percent) of gross domestic product [2].

Services have not just grown in importance; radical changes have taken place in the nature of services produced in the economy. Some of the changes affecting services include the following:

- Globalization of economic activity and increased trade in services;
- Technological changes, particularly in the areas of computers, information, and communications services;
- Changes in intangible inputs, such as education, training and the growth of knowledge, which have increasingly become the basis for services transactions;
- Changes in government policy, such as decreased regulation of transportation and financial services;
- Contracting out of services (especially from manufacturing);
- Changes in demographics, such as aging, and the consequent increasing demand for health care; and
- Changing consumption patterns and living standards, more consumption of entertainment, recreational and travel services, and so forth.

The Economic Classification Policy Committee (ECPC), Statistics Canada, and Mexico's Instituto Nacional de Estadística, Geografía e Informática have agreed to a common North American Industry Classification System (NAICS), for which the respective countries have pledged to direct attention to developing production-oriented classifications for services industries.

This ECPC issues paper on services classifications addresses primarily issues that are encountered in the formation of 4-digit industries in the services sectors. In many ways, this paper expands ECPC Issues Paper No. 1, "Conceptual Issues" [4], to encompass those special problems and circumstances that arise in the classification of services. Services industry hierarchies--that is, the formation of higher-level groupings of 4-digit services industries--raise the same issues that have already been covered in ECPC Issues Paper No. 2, "Aggregation Structures and Hierarchies" [4], so services hierarchies are not emphasized in the present issues paper.

6.2 The Goods-Services Boundary

At the 1991 International Conference on Classification of Economic Activities at Williamsburg, Virginia ([3], hereafter, "Williamsburg Conference"), Joel Popkin stated: "There is an urgent need to redefine and retitl the major industries that comprise the nongoods sector in ways that better describe their role and significance in the U.S. industrial structure" (Williamsburg Conference [12], p. 61). Erwin Veil (Williamsburg Conference [20], pp. 127-31) remarked that "there does not exist an internationally-agreed official definition of services," so that "as a consequence, cross-country comparability [of service statistics] is very limited." Others repeated these themes.

In a number of dimensions, the boundary between "goods" and "services" is not clearly defined. T. P. Hill ([8], p. 318) defines a service as "...a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as the result of the activity of some other economic unit...." Hill's definition of services largely corresponds with what is sometimes called the "broad definition of services": everything other than the goods-producing industries.

Expressing a contrary view, Courtenay Slater (Williamsburg Conference [18], p. 150) has complained that designating everything other than the goods sectors as "services" results in a "conglomerate that is too large and too diverse to be analytically useful." Popkin (Williamsburg Conference [13], pp. 160-1) proposed separating "distribution networks" (transportation, communications, public utilities, wholesale and retail trade, and manufacturers' sales branches) from a "services" division that consists of producers' services, consumer services, social services, and public administration.

One advantage of Popkin's proposal (see also Popkin [14], pp. 50-1) is that for many of the "network" industries--especially transportation, communications, and public utilities industries--output and classification problems may be addressed analogously to procedures long employed in many goods-producing industries. Popkin's proposed "services" division contains most of the industries--especially business services and personal services--which pose the especially difficult problems of "measuring services." For the remainder of this paper, then, "services" will refer to industries that fall into Popkin's services division--that is, the narrower definition of services that excludes distribution and network industries. Establishing classifications and developing concepts of output for retail and wholesale trade also pose many difficulties, some of which are considered in the paper.

Even on a narrow definition of services, the boundary between goods and services is not always well defined. Hill notes ([8], p. 320) that "...one and the same activity, such as painting, may

be classified as goods or service production depending purely on the organization of the overall process of production among different economic units. If the painting is done by employees within the producer unit which makes the good, it will be treated as [part of] goods production, whereas if it is done by an outside painting company, it will be classified as an intermediate input of services."

Thus, when a service previously performed in a manufacturing establishment is "contracted out" to a specialized services firm, data will show an increase in services production in the economy even though the total activity of "painting," as an example, may be unchanged. However, contracting out may imply a change in the structure of production--certainly that part of it that is contracted out--and perhaps in its geographic location, and contracting out results in a new set of transactions and transactors. So for many purposes, services data should record changes arising from contracting out, even though for other purposes this might not be appropriate. For collecting economic data by industry, it will generally be true that contracting out should be recorded as an increase in the economic activity of specialized services-producing establishments.

The boundary between goods and services may also be ambiguous because many sales contracts for goods include an explicit or implicit bundle of associated services. Robert Reich ([16], p. 85) maintains that: "The distinction that used to be drawn between goods and services is meaningless, because so much of the value provided by the successful enterprise...entails services: the specialized research, engineering, and design services necessary to solve problems; the specialized sales, marketing, and consulting services necessary to identify problems; and the specialized strategic, financial, and management services for brokering the first two. Every high-value enterprise is in the business of providing such services."

Reich is certainly correct that for some purposes the demand for information about the production of services in an advanced economy encompasses services that are bundled with goods. For those purposes, any classification system that distinguishes between goods and services industries inevitably misses services that are bundled in with goods production. To keep this problem in perspective, however, it is not really new: Even 60 to 70 years ago, some luxury automobiles were sold with extended guarantees providing maintenance and repair services, in some cases at the residence of the purchaser. Early computer and office machine producers provided a more extensive set of post-installation services to the buyer than is common today.

Ultimately, the ECPC must decide where an activity is to be placed among 4-digit industries, and where a 4-digit industry is to be placed within the higher-level structure of the system.

Accordingly, the question of the goods-services boundary must be confronted.

The boundary, however, is a pragmatic issue, and cannot be drawn on the basis of some grand scheme that separates goods from services. It is probably true that too much effort has been expended on defining the boundary of goods and services, and too little effort on measuring, analyzing, enumerating, and classifying the services that will clearly fall within the boundary no matter where its precise definition. In the rest of this paper, the discussion is written as if an agreed-upon boundary, drawn on pragmatic lines, exists, and the question of determining the boundary between goods and services can be set aside.

6.3 Conceptual Approaches to Services Classifications

ECPC Issues Paper No. 1, "Conceptual Issues," distinguishes between two economic concepts for economic classifications. One concept is a production-oriented, or supply-based, classification concept. The other is a market-oriented, or demand-based, classification concept. These two classification concepts correspond in turn to broad categories of uses of industrial statistics.

The examples of production-oriented and market-oriented classification concepts in ECPC Issues Paper No. 1 were drawn from goods production. The task in the present section is to explain how the two economic concepts apply to services.

Production-oriented or Supply-based Concept for Services

A production-oriented concept aggregates establishments according to similarity in the processes that produce and deliver goods or services (ECPC Issues Paper No. 1, section 1.2 contains more information on the production-oriented concept). Services that are produced in similar ways or that have similar inputs (including similar labor skills) are grouped together in a production-oriented classification concept.

It is perhaps less common to describe services as the outputs of production processes than it is for goods. However, the concept of production is no less valid for services.

As an example, establishments in industry SIC 8062, General Medical and Surgical Hospitals [23], provide diagnostic services, medical treatment (including surgical services), continuing nursing services, and other hospital services. A hospital employs the standard productive inputs of economics: capital (structures and equipment, some of it highly specialized), materials (including drugs), and labor (many of whom are skilled specialists). Medical technology and medical inputs are combined to produce medical care, just as manufacturing technology and

manufacturing inputs are combined in a manufacturing production process.

Once an output measure for hospitals has been determined, hospital production can in principle be analyzed in a manner analogous to production in a manufacturing industry. The most difficult problems in analyzing hospital production arise because we do not have good measures of the outputs of hospitals, and we do not fully understand how to measure the outputs of many medical care production processes (section 6.4 discusses implications for classifications of problems in defining and measuring services). However, measurement problems do not invalidate the application to hospitals, and other services, of the production-oriented concept for economic classifications.

The application of the production-oriented concept to services industry classifications can be illustrated by a hypothetical example. Hospitals that perform transplant operations and associated advanced medical procedures require skilled specialists and special equipment for the operating and recovery phases of the procedures. Thus, such hospitals may differ in their production technology and processes from hospitals that do not carry out advanced procedures. If one were to propose subdividing the present SIC 8062 into more homogeneous production-oriented categories, it would be necessary to consider whether hospitals that do advanced medical procedures might be separated from general hospitals.

Similarly, one might ask whether walk-in clinics, which provide substitutes for some kinds of hospital out-patient care, should be grouped with the hospitals that are now placed in SIC 8062. Again, the concept of medical-care production suggests that walk-in clinics do not share the technological equipment or specialists of advanced hospitals. A proposed subdivision of the present SIC 8062 might consider whether the production differences that exist in walk-in clinics would justify putting them in a separate 4-digit industry.

Other production-oriented paradigms for services industries can be distinguished. M. C. McCracken [9] notes that many services industries move people, things, or abstractions from one location, or one individual, to another. Transportation is an obvious example, but communications, intermediation activities, information activities, and all brokerage and agency relations fit this paradigm.

Other services industries provide locations for particular kinds of activities to take place. The differences between a fast food establishment and a restaurant with table service, or a bar, are as much the provision of facilities and an environment for socializing as in the characteristics of the food that is served. Retail establishments do not only move goods from the wholesale level to the final customer. They are also locations where potential customers obtain information about the availability of goods and services. Providing a location where

potential customers know that information exists is part of the production activity of retailing. Other examples could be developed.

One point here is that production processes for services have analogies and similarities to the production processes for goods, and can be analyzed in similar ways. But a second point emphasizes that services are not exactly like goods. Classification of services by a production-oriented concept will require analysis of the distinctive aspects of services production that arise because of the nature of services.

Labor Skills and the Production-oriented Concept for Services

A services firm is often in the business of selling the skills of its workers. When this is the case, the production process of a services producer depends essentially on the skills and human capital of its employees.

For example, an economics research firm is now classified in SIC 8732, Commercial Economic, Sociological, and Educational Research. Most of the firm's employees will have degrees in economics and experience in economic applications. If the firm regularly bids for contracts on economic projects that involve econometrics or other quantitative or technical tasks, employees must have substantial skills in computer programming and other quantitative capabilities.

On occasion, this research firm may also obtain contracts to provide computer programming services that are related to the computational activities that arise frequently in the firm's economic research work. Computer programming services fall in SIC 7371. Depending on the market for research, this firm might switch from producing services that are now in SIC 8732 to services that are placed in SIC 7371, with no change in its mix of employees and labor skills.

If this economics research firm is characteristic of its industry--that is, if economics consulting firms with skills similar to those in our example regularly bid in the market for computer services--then what these firms are capable of producing with the skills of their employees are service commodities that cross market boundaries. Applying a production-oriented concept to this industry, the activities of economics consulting and closely-related quantitative computer services consulting could not be separated on production-oriented grounds.

Of course, similar problems arise in goods-producing industries. If the economics consulting firm in the example were not typical of the rest of the industry, then one might treat its computer services activities as secondary products. Alternatively, switching of establishments across industry boundaries is not uncommon, and one might view the economics research firm as changing its industry when it engages in computer services activities.

However, the productive capabilities of a services firm's employees will need to be taken account of in any production-oriented classification system. If a large number of firms that are classified in one industry have the capability for switching back and forth between the industry in which they are classified and another one, the industry boundaries are inappropriately drawn. In services, partly because the analysis of services industries is less well developed than in the goods-producing industries, the statistical agencies that design the classification system must gain additional information about the capabilities of services firms to enter alternative markets, and build these contingencies into the classification system.

Because of the crucial role played by labor inputs in the production of services, the ECPC is carrying out an analysis of occupational data for services industry establishments. Services industry establishments that have similar production processes should employ similar workers in similar proportions. Similarity in occupational structures is therefore one production-oriented characteristic of establishments that belong together in a services industry.

Of course, using occupational data to examine the appropriateness of services industry groupings requires the assumption that occupations have been defined so that they are in fact productive inputs to a production process. It requires, that is, that occupational classifications also correspond to a consistent economic concept, in this case the concept that is derived from the use of labor inputs in production. On economic concepts for occupational classifications, see Jack E. Triplett [19] and Joel Popkin [15].

Market-oriented or Demand-based Concept for Services

A market-oriented classification concept yields a classification system that depends on how the commodities are used. Under a market-oriented concept, services commodities are grouped together that serve similar purposes, that are used together, or that are functionally related in use. (ECPC Issues Paper No. 1, Section 1.2, describes the market-oriented concept in more detail.) As an example, the economics consulting firm discussed in the previous section produces services for two different markets. For a market-oriented classification concept, the two services might be separated, because the clienteles for the two types of services are different--if, that is, the services are neither substitutes nor complements for a particular set of buyers.

As another example, SIC 7997, Membership Sports and Recreation Clubs, consists of establishments that provide amateur sports and recreation services on a membership basis. They include aviation clubs, bridge clubs, boat clubs, and golf clubs. To consumers, these activities represent various choices or substitutes in the

use of their leisure time. The club houses or restaurants of these facilities serve as informal gathering places for business professionals, gatherings that presumably strengthen the commercial relationships of the members. Again, the facilities represent substitutes for similar business purposes. Consumers and businesses select which club to join based on their personal and professional needs.

While these sports clubs serve similar purposes, the labor, land, equipment, and capital inputs vary considerably among them--consider, for instance, bridge clubs, country clubs, and boat clubs. The ability of producers to change from delivering one type of recreational service to another is limited, and it would require substantial changes in equipment, buildings, employee skills, and perhaps in location. Sports and recreation clubs do not seem a very homogeneous grouping with respect to input usage or production processes.

Other market-oriented groupings aggregate services that are complements rather than substitutes. SIC 7231, Beauty Shops, includes hairdressers, facial salons, manicure salons, and cosmetology shops. Many establishments deliver and sell the full range of these services as a beauty package. Other shops specialize in only one service; the recent growth in nail salons is one example. SIC 7241, Barber Shops, also provides a range of hair styling and services, which complement each other.

Comparing Production-oriented and Market-oriented Groupings

Market-oriented groupings often differ from production-oriented groupings. The needs for market-oriented classifications for services data cannot always be met by production-oriented groupings of services, or by combinations of them.

Moreover, because they reflect limits of markets, market-oriented groupings sometimes imply that outputs of a single economic unit may be separated into two or more market-oriented groupings. As discussed in section 6.4, below, this applies particularly to a number of proposed market-oriented groupings in services (tourism, for example). These examples also show that the needs for production-oriented groupings of services data cannot always be met by market-oriented groupings.

However, in many cases services correspond to "ideal" industries--those that are simultaneously production- and market-oriented groupings. Hospitals that perform transplants were, as noted above, a possible production-oriented grouping, because their capabilities differ from general hospitals and from walk-in clinics. For those patients who need transplants, hospitals that cannot do such operations do not provide close substitutes for hospitals that do. Groupings of hospitals by production-oriented and market-oriented concepts might be found

to coincide, and if so would create classifications that conform to ideal industries. Thus, the hypothetical groupings of advanced-techniques hospitals, walk-in clinics, and so forth might all conform to the requirements of ideal industries.

Similarly, SIC 8111, Legal Services, can be described by the labor skills required (principally, attorneys), or by the market for services, such as wills, divorces, or corporate representation. Like hospitals, legal services might be separated into categories whose functions require specialized skills. For example, one does not expect that the same individuals or the same legal firms will have skills for dealing with marital relations cases and with anti-trust cases or corporate mergers. Those different legal specialties correspond to different production capabilities, which might justify separating the different kinds of legal services into separate production-oriented groupings. At the same time, persons seeking legal advice would not consider an anti-trust lawyer, for example, as a close substitute for a divorce lawyer. Thus, the production-oriented groupings might well also correspond to market-oriented groupings. If this is true, then the partitioning of legal services might create a number of ideal industries.

6.4 Broad Market Groupings: Examples of Market-Oriented Concept

ECPC Issues Paper No. 1, and section 6.3, above, both note that production-oriented industry concepts are sometimes inconsistent with aggregations that are suitable for market analysis. This conceptual inconsistency is particularly noteworthy for very broad market groupings that may cut through the production processes of individual establishments. This section discusses three such proposed broad market groupings--travel and tourism, information services, and environmental services.

Travel and Tourism

The frequent request for a "tourism industry" is an example of a broad market-oriented grouping for services. Tourism includes amusement parks and recreation facilities, which are clearly oriented primarily to consumers. But the tourism grouping would include as well air transport and other forms of travel, hotels and motels, restaurants, and so forth, all of which cater to tourism. The United Nations Draft Standard International

Classification of Tourism Activities (SICTA) [21] provides a

comprehensive list of tourism services that is even broader than the activities listed above.

Because airlines, hotels, and restaurants also provide similar or identical services to business travelers, and restaurants serve local residents, only a portion of the sales receipts of

such businesses derives from tourism. To provide data on tourism, data from most establishments that cater to tourists would need to be disaggregated by class of customer. Put another way, a "tourism industry" is a market-oriented grouping that would cut across industries defined on a production-oriented basis, such as restaurants, hotels, and air travel (the present U.S. SIC 5812, 7011, and 4512). The U.N. SICTA classification

system states explicitly: "Most definitions of tourism are demand-based and define tourism as the aggregate of the services and products purchased by tourists, however tourists are defined. This means that the same product or service will or will not be a tourism-related economic activity based on certain characteristics of the consumer, rather than anything inherent in the product or service" ([21], p. 5).

Information Services

New communications technologies are revolutionizing the traditional methods for sending and receiving information. These changes are generating interest in grouping together all establishments that provide information services, regardless of the information technology they employ.

It has been suggested that SIC Major Group 48, Communications, should be broadened to encompass complementary information services, including printing and publishing activities now classified in manufacturing. Printing and publishing, the reasoning goes, also are a means of communication. Many publishers now offer electronic versions as alternatives to the traditional printed format, and printed information is increasingly transferred or accessed electronically.

Another suggestion is to transfer information retrieval services now located in Major Group 73, Business Services, to Major Group 48, Communications. On-line information retrieval services (SIC 7375), it is pointed out, are alternative methods of communication: data and video instead of voice.

Similar classification issues regarding information services have been discussed by the Voorburg Group Meetings on Service Statistics. See the Papers and Final Reports of the Voorburg Group Meetings on Service Statistics [24, 25, 26, 27].

It is true that increasingly communications are being integrated with automatic data processing and database operations to form information systems that are sold as comprehensive and integrated units. These formerly separate markets have merged as technology and equipment have incorporated many of the complementary features that were once considered unique or specialized to data processing or communications.

Combining information services that are close substitutes would conform to a market-oriented grouping. Combining information services that are complements, which would include

parts of 4-digit industries from communications, manufacturing, and business services, would also conform to a market-oriented grouping. This need for broad market-oriented data on information services should be met from product data. It cannot readily be met by an industry system that groups establishments by similarities in production technologies and production process.

Though the productive technology for communications has been changing rapidly, that does not necessarily mean that a market-oriented grouping poses fewer problems, or that it replaces the need for production-oriented groupings. Rather, the need for broad market-oriented information on communications is a separate need that should be met apart from the production-oriented system.

Environmental Services

As with tourism and information services, establishments providing environmental services are classified in many different industries in the current U.S. SIC system. Environmental engineers, for example, are classified in SIC 8711, Engineering Services; environmental management consultants are included in SIC 8742, Management Consulting Services; hazardous waste removal is part of SIC 4953, Refuse Systems; an establishment that collects nonhazardous solid wastes, but does not have its own disposal facility, is placed in SIC 4212, Local Trucking without Storage.

Pulling together information on these very different types of activities is essential to data users wanting to analyze the market for environmental services. Moreover, many of the establishments share common concerns over environmental regulations.

Bruce Parker of the National Solid Wastes Management Association (NSWMA) commented: "While the bulk of the \$35 billion industry is devoted to nonhazardous wastes, an important and separate segment of the industry represented by NSWMA provides the specialized services needed to manage those wastes that have come to be regulated as hazardous because of their physical, chemical, and toxicological characteristics. Finally, a third group of member firms is focused on the cleanup of sites contaminated by wastes disposed of improperly in past years" [11].

Though a diverse number of establishments may share common concerns about a set of legal restrictions, those establishments may not share a common set of production processes or even a common range of products. The industry classification system to be established in the new NAICS is based on grouping establishments by commonality of production processes. It will not necessarily, therefore, produce market-oriented groupings.

The ECPC will develop a product classification system for the services industries to complement the production-oriented industry system in NAICS. This new system will provide product detail necessary to compile economic data for services wherever produced.

6.5 Measuring Services: Implications for Classifications

It is obvious that to classify establishments producing services one must have an understanding of what these establishments are producing. This is as true for a production-oriented classification system as for a market-oriented one.

Services sectors pose a number of measurement difficulties that are perhaps more intense than similar difficulties encountered in collecting industrial statistics on goods-producing industries. Defining measures of output, satisfactorily handling heterogeneity and quality change in outputs, collecting data from small employers, all pose particular difficulties in services. Measurement problems in services industries have been discussed in professional reviews of service statistics at least since the review of service industry measurement issues by Victor Fuchs [6]. A recent overview of the problem is Zvi Griliches, ed. [7]. The proceedings of the Voorburg Group [26] are also concerned with such problems.

A classification system must above all be able to differentiate between the outputs of different establishments. To differentiate to a useful level requires a description of the services in some detail, an understanding of what services establishments are producing.

This is true for both production and market orientations. It is not possible to differentiate among production processes without describing in some detail what results from each process. The market-oriented approach also requires a description of the product, so that those products that do not serve similar purposes, for example, can be separated.

Unlike goods, where transactions generally involve a physical transfer that can be observed and described, and also a change of ownership, services transactions generally entail neither ownership transfers nor physical transfers. As the earlier definition of a service taken from Hill highlights, the service may be manifested as a change in the condition of a person or a good. The services are intangible in many cases and can have many dimensions. Consequently, they can be difficult to describe.

One general problem encountered in describing some services is that there can be more than one way to describe an industry's output. For example, medical care may be described by procedures

performed, medical conditions of the patients, or probable cures.

The choice of output description in this case has classification implications; it dictates the orientation of the classification. A description of hospital output based upon cures seems consistent with a market orientation. Different hospital treatments for the same problem might be considered substitutes, so that no demarkation need be made in a market-oriented grouping, even though quite different procedures are employed.

Describing hospital services in terms of specific medical procedures is consistent with a production approach. For hospitals and other services, the emergence of new services and rapid technological changes compounds the difficulties.

In some services industries (SIC 7241, Barber Shops), the outputs are as readily defined as they are in most goods-producing industries. But even here, the appropriate unit of measurement can be debated. Because a haircut requires the presence of the consumer and because people resent waiting, how does one value the easy availability of a barber when entering a shop? Does the lack of a wait convey less output or excess capacity, or does it imply a higher level of personal service?

In other services industries, the outputs are not entirely clear, and because the outputs are not well defined, industry boundaries for classification purposes are likewise not well defined. For example, economists do not fully agree on the appropriate measures for outputs of financial services companies. Without consistent measures of financial output, classification experts find it more difficult to group financial activities into industries. See also Mark Sherwood [17] for a more extensive discussion of these and other issues as they apply to service outputs.

Of course, one cannot expect to resolve all conceptual issues for service industries before a new classification system is constructed. In recognition of the need for improved commodity and output codes, the ECPC has established the Services Commodity Codes Task Force to expand and update the enumeration of services outputs.

6.6 Questions Concerning Specific Services Industries

Nonprofit Organizations

The growth of nonprofit organizations has generated broad interest in their classification. At present, there are no separate 4-digit industries specifically for nonprofit establishments.

At the Williamsburg Conference, Joel Popkin (Williamsburg Conference [13], p. 201) proposed a "Social Services" Division which would include social services provided by government and by

private organizations. He suggested disaggregating commercial, nonprofit, and government organizations, because the prices charged for the services provided by these types of organizations may differ.

It might also be argued that there are production-oriented differences among these types of units which justify separating nonprofit establishments from profit-making ones. However, the production characteristics of nonprofit establishments may not be distinct enough to warrant separate treatment. Are child care centers operated by nonprofit organizations distinct in what they do and how they do it from those operated by commercial businesses? Are nonprofit research units necessarily employing different production processes than those that do contract research for profit (for-profit research units are now placed in different 4-digit industries from nonprofit research organizations--SIC 8731, Commercial Physical and Biological Research, SIC 8732, Commercial Economic, Sociological, and Educational Research, and SIC 8733, Noncommercial Research Organizations, respectively). A market-oriented system would also probably group some of these organizations together since in some cases nonprofit and for-profit units are all providing very similar services, regardless of their organizational and ownership structures.

Some data on nonprofits by industry are provided now. The Census Bureau in its Census of Service Industries and Services Annual Survey publishes data for selected 4-digit industries by tax status (tax status is used as a proxy for nonprofit/for-profit status). This allows users to analyze data on the nonprofit segment of 4-digit industries separately, or to combine data for both segments where appropriate for their purposes. This approach, which provides for separate data on nonprofit organizations, provides an alternative to establishing distinct 4-digit industry classifications.

Laws and Regulations

The classifications of many services industries in the U.S. SIC reflect the laws or regulations that were in force when the classifications were created. Examples include the following:

SIC 6798 (Real Estate Investment Trusts) is based on the Real Estate Investment Act of 1960, as amended;
SIC 6021 (National Commercial Banks) includes establishments chartered under the National Bank Act; SIC 6022 (State Commercial Banks), groups establishments chartered by one of the states or territories; SIC 6029 (Commercial Banks, Not Elsewhere Classified) groups establishments that do not operate under Federal or State charters. Similar groupings by regulatory coverage exist for the different industries in Industry Group 603 (Savings Institutions) and Industry Group 606 (Credit Unions); and

The differences between SIC 8051 (Skilled Nursing Care Facilities), SIC 8052 (Intermediate Care Facilities), and SIC 8059 (Nursing and Personal Care Facilities, Not Elsewhere Classified) are based, at least partially, on Medicare/Medicaid qualifications.

One rationale for past practice was the desire to avoid duplicating the reporting requirements for regulatory data already collected by the Federal Government. Another is the substantial interest in studying the effects of regulation and the economic behavior of regulated enterprises.

In an era of deregulation, many regulatory laws have been rescinded or modified, and all are subject to change. In many of these cases, regulatory data reporting requirements have been eliminated. Numerous changes were made to industry detail for the 1987 SIC--for these areas and others--to reflect the effects of deregulation.

Little justification exists for maintaining industry time series based on obsolete regulatory institutions. It might have been true that regulated industries adopted different production methods from those used in closely-related nonregulated industries, or that regulations reflected production differences. But in a deregulated environment, those differences would disappear. And though there is interest in analyzing the economic behavior of formerly-regulated enterprises, this is a transitory need that cannot be built permanently into an industry classification system. More crucially, the continuing classification in the future NAICS of industries by conditions of current U.S. regulatory oversight would probably create unstable groupings of establishments that lack homogeneity in production, the services delivered, or markets served, and would limit, moreover, the comparability of industry data among the North American countries to be covered by NAICS.

Integration of Services Industries with Using Industries in the Hierarchy

Some 4-digit services industries are currently classified within the SIC Division for which the services are performed. For example, crop services, such as aerial dusting and spraying, are included in Division A, Agriculture, Forestry, and Fishing; oil and gas well drilling services are included in Division B, Mining; and services provided to the banking industry are in Division H, Finance, Insurance, and Real Estate.

Moreover, the International Standard Industrial Classification of All Economic Activities (ISIC), Third Revision [22], carries this vertical integration between supplying and using industries much further: Repair services of most capital goods are placed in ISIC with the manufacturing industry that originally made the good that is repaired. For example, ISIC 3530, Manufacture of

Aircraft and Spacecraft, includes the maintenance, repair, and alteration of aircraft and aircraft engines.

Grouping of services with the using industry or sector offers certain advantages. Manufacturers, as well as other industries, are using and demanding more off-premise services, sometimes referred to as "contracting out." If services used by manufacturing industries were themselves placed in separate 4-digit industries, yet were combined in the same 3-digit or 2-digit aggregate with the using industry, then the services would be recorded with the using industry (desired for some purposes) at the 2-digit level, but could be analyzed separately (required for some other purposes) at the detailed industry level. However, many services (e.g., SIC 0782, Lawn and Garden Services) are used extensively by firms and households outside the 2-digit level, so it is difficult to construct a system that allocates services to a unique set of using industries. Moreover, grouping some business services with some using industries causes inconsistencies for cases when data users want measures of the business services themselves.

This issue of grouping supplying and using industries together concerns the proper role of hierarchies of industries (see ECPC Issues Paper No. 2), and is not unique to services. It will accordingly be considered by the ECPC as part of its evaluation of hierarchies, rather than as a specific question for services industries.

Actual versus Perception

In the U.S. SIC, some industries are classified based on the "public view" of the establishment or "how they are known in the trade." For example, drug stores in the United States sell a variety of products, from hair spray to food items to paper products; prescription and proprietary drugs are usually no longer the primary products sold by drug stores. The SIC description for industry 5912, Drug Stores and Proprietary Stores, states that "these stores are included on the basis of their usual trade designation rather than on the stricter interpretation of the commodities handled."

Similarly, a lumber and building materials dealer is classified in retail trade (SIC 5211, Lumber and Other Building Materials Dealers) if, according to the 1987 SIC Manual, the establishment is engaged in selling primarily lumber, or lumber and a general line of building materials, to the general public. Even though these establishments may sell primarily to construction contractors (selling primarily to business is the present definition of wholesale trade), they are known as retail in the trade. Similar conventions are also adopted for hotels, retail gasoline service stations, and some other industries.

Should these kinds of distinctions continue to be made in the NAICS? The wholesale/retail distinction is weakening as more and

more businesses sell to both "the trade" and to consumers. On the other hand, data users are interested in the differences in margins between "wholesale" and "retail." Changes in retail sales are still important economic indicators, yet data that correspond to the present SIC classification system may miss some growth in retail sales. Moreover, practical problems of data collectibility and classification also arise: Establishments generally do not maintain records that can distinguish sales of gasoline or of lumber between household users and business users.

6.7 The Past Approach to Services Classification

In the past, decisions on new industry detail have come largely in response to public proposals. As it turns out, more proposals have been received over the years for creating goods-producing industries than for creating new services industries. Partly as a result, the 1987 SIC Manual [23] lists 53 4-digit industries for Division H, Finance, Insurance, and Real Estate, and 150 for Division I, Services, but 459 4-digit industries for Division D, Manufacturing. As noted in ECPC Issues Paper No. 4, "Criteria for Determining Industries" [4], the existing economic significance criterion also inhibits the formation of 4-digit service industries, because it requires new services industries to be on average much larger in terms of employment than those in manufacturing. Partly as a result, average employment per 4-digit industry was 29,053 in the Services industries (Division I) in 1992, compared to 18,040 in Manufacturing (Division D).

Lack of extensive and detailed commodity data has in the past limited the delineation and reporting of services. For example, specialization and coverage ratios have not been computed for service industries because the necessary commodity detail is not available for services on a "wherever made" basis. Moreover, for many services industries, data collected in the United States at the establishment or enterprise level cover only employment, payroll, and gross receipts. For some establishments (e.g., nonprofit), satisfactory measures for even these variables do not exist.

During past SIC revision processes, some proposed changes to services classifications have been rejected because of the difficulty of coding accurately the activities of the small businesses that dominate these sectors. Those proposals have included such important areas as hotels, motels, retail gasoline stations, grocers, and department stores. Much of the SIC coding for small businesses is done by the Internal Revenue Service and the Social Security Administration, based on written descriptions provided by the company. (See ECPC Issues Paper No. 3, "Collectibility of Data," [4] for a discussion of the coding practices of these agencies.) Any industry coding system must take into account the ability of small businesses to report the

required information for industry coding and the ability of Federal Government agencies to code the establishments to the proper industry.

6.8 Services Classification in the North American Industry Classification System

The concepts statement for the NAICS, issued jointly by the United States, Canada, and Mexico, explains that the new system will define industries on the production-oriented concept, as explained in ECPC Issues Paper No. 1. That is, industries in the new system will group establishments together on the basis of their sharing similar production processes.

Statistics users have stressed the need for more detail on services. Audrey Freedman, Chairperson of the Business Research Advisory Council to the Bureau of Labor Statistics, noted that "the SIC is crippled as to services. Services get ignored or mixed as ancillary to manufacturing" [5]. Dale Mortensen, in his prepared remarks to a joint meeting of the Census Advisory Committees, observed that "On a practical level, [economic classification] comes down to the services sectors. It is a half century too late; there are still not enough data on specific products and technology" [10]. Services are exactly where the need to recognize newly-emerging industries is the most urgent.

The need for service classification improvements suggests that alternatives to the traditional sources--public proposals for "new" industries--must be sought. It is clear that the problems that have inhibited past classification of services industries must also be overcome. The ECPC has committed to the following actions to address the problems that have inhibited the recognition of services classifications in the past:

- (1) With respect to services industries, the ECPC, in conjunction with Statistics Canada and Mexico's Instituto Nacional de Estadística, Geografía e Informática, has committed to an outreaching, active role in improving services industries classifications. In the future, classification of services industries will not depend solely on the volume of proposals that are sent to classification committees by the public. The agencies will seek out needed improvements in the data by consulting widely with data users and with respondents to government surveys, with trade associations, and with other groups.
- (2) As described in the ECPC Federal Register notice announcing

the new NAICS, the criteria for considering industries in the NAICS will be altered from past U.S. practice. In particular, the size rules, and heavy reliance on specialization and coverage ratios, will be relaxed in the NAICS, particularly where past application of these standards has inhibited the growth of classifications for services industries.

- (3) The historical lack of service sector data is being redressed in other statistical agency programs. For example, the 1992 Economic Censuses are collecting more information on services than has been collected previously. The 1992 Censuses collected data on 4-digit industries in communications, which have previously been collected by the Federal Communications Commission, in transportation, and in finance, insurance, and real estate. For the first time, all business services questionnaires included a line item for exported services. The Bureau of Labor Statistics has recently expanded the number of services industries covered in the producer price index--for example, a comprehensive output price index for hospitals was introduced in December 1992.
- (4) The ECPC has established a Services Commodity Codes Task Force to improve the basic lists of services that are used for sampling and enumeration across U.S. statistical agencies. In time, and after the Task Force's work has been fully tested, these commodity codes will improve the basic database and sampling frames that are used to collect information on the production of services in the economy.
- (5) With respect to difficulties in industry coding, the ECPC is exploring a number of alternatives that hold promise for dealing with past problems. Other countries, including the statistical agencies of France and Australia, have worked on "expert systems," computer-based systems for improving the basis for industrial coding. The ECPC is in contact with these international statistical agencies, and will study their potential for application to the United States.
- (6) One of the issues presented in ECPC Issues Paper No. 1 concerns the proper level of coding for industrial classification purposes--that is, should the establishment, the traditional unit for coding, be replaced by a higher level unit in the company, the "division, department or subsidiary," or DDS? For areas of the economy where data availability, company organization, or production methods make the DDS the appropriate unit, the ECPC will consider moving the classification unit to the new structure. A report on the feasibility of the DDS is being prepared and will be released when available.
- (7) In its Federal Register notice, the ECPC is committing to

establishing new market-oriented groupings to meet the needs of data users, where those needs cannot be met by the production-oriented economic concept to be introduced in the new North American Industry Classification System (NAICS). This proposal could in principle encompass the need for the "Cross-cutting" groupings discussed in section 6.4, above. Some similar market groupings are already provided. For example, for those seeking information on automotive repair and services, the Census Bureau collects detailed data on

gasoline sales, repair receipts, etc., from car dealers, gas stations, and automotive repair shops, each a separate 4-digit industry. Even though these establishments may be included in separate SIC industries, product data are aggregated into a market-oriented grouping for those seeking information on the automotive services markets. Comparable data might be collected for environmental services, tourism, etc., in response to requests from users.

6.9 Conclusions: Request for Comment

The ECPC is committed to improving services industries classification. The actions described in section 6.8 represent the initial efforts toward this objective. These efforts will also direct attention to updating the services product data to represent newly emerging industries and technologies.

To assist in these efforts, the ECPC invites comments on the appropriate groupings of services industries, and on ways for generating more information that would lead to appropriate classifications of services industries. Specific comments are solicited on the issues discussed in this issues paper. The ECPC is also interested in receiving comments on any issues pertaining to services industry classifications that have not been addressed in this paper.

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